Remarks

This application has been reviewed in light of the Office Action of January 17, 2003. Claims 1-20 are pending, and all claims stand rejected. In response, claim 1 is amended; claim 8 is canceled, without prejudice; claims 21-33 are added; and the following remarks are submitted. Reconsideration of this application, as amended, is requested.

The drawings are objected to, and a proposed new set of formal drawings is submitted concurrently herewith. Consistent hatching has been added as requested by the Examiner. Applicant asks that the Examiner approve these drawings.

Claims 1-6, 8-9, 11-14, and 17-18 are rejected under 35 USC 102 over Griffin '094. Applicant traverses this ground of rejection of the claims as amended.

The following principle of law applies to sec. 102 rejections. MPEP 2131 provides: "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. The identical invention must be shown in as complete detail as is contained in the ... claim. The elements must be arranged as required by the claim..." [citations omitted] This is in accord with the decisions of the courts. Anticipation under section 102 requires 'the presence in a single prior art disclosure of all elements of a claimed invention arranged as in that claim.' Carella v. Starlight Archery, 231 USPQ 644, 646 (Fed. Cir., 1986), quoting Panduit Corporation v. Dennison Manufacturing Corp., 227 USPQ 337, 350 (Fed. Cir., 1985)

Thus, identifying a single element of the claim which is not disclosed in the reference is sufficient to overcome a Sec. 102 rejection.

Claim 1 is amended to incorporate the limitations of claim 8, and claim 8 is canceled. Claim 1 as amended recites in part:

"each spiral conductor structure retains a same pair of circumferentially

adjacent spiral conductor structures along a length of the electrical cable"

Griffin has no such disclosure. In respect to Figure 2 of Griffin, referenced in the rejection of claim 8, Griffin discloses at col. 6, lines 5-21 a power cable where there are exactly two groups of six conductors each, with the first group of line conductors 62 circumferentially adjacent to the second group of neutral conductors 60. There is no disclosure of any side-by-side ordering within each group that is retained along the length of the electrical cable, probably because each of the conductors within each group perform the same function. The six conductors within each group simply split up the total current. The two types of conductors in Griffin are not signal-carrying conductors, but instead purely power-carrying conductors.

Thus, if the 12 conductors were numbered 1-12 circumferentially clockwise at a first location along the length of the cable (with 1-6 being the line conductors 62 and 7-12 being the neutral conductors 60), there is no teaching that the same 1-12 numbering would be preserved throughout the length. The numbering might be, for example, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 at location A; 1, 3, 5, 2, 4, 6, 10, 12, 9, 11, 8, 7 at location B; and yet other numbering at other locations. Stated another way, there is no disclosure in Griffin of any ordering other than the conductors 1-6 being in one group, and the different conductors 7-12 being in another group.

Claims 11 and 17 have similar limitations.

Applicant asks that the Examiner reconsider and withdraw this ground of rejection.

Claims 7, 10, 15-16, and 19 are rejected under 35 USC 103 over Griffin '094 in view of Hansen '603. Applicant traverses this ground of rejection.

The following principle of law applies to all sec. 103 rejections. MPEP 2143.03 provides "To establish prima facie obviousness of a claimed invention, all claim limitations must be taught or suggested by the prior art. In re Royka, 490 F2d 981, 180 USPQ 580 (CCPA 1974). All words in a claim must be considered in judging the

patentability of that claim against the prior art. In re Wilson, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970)." [emphasis added] That is, to have any expectation of rejecting the claims over a single reference or a combination of references, each limitation must be taught somewhere in the applied prior art. If limitations are not found in any of the applied prior art, the rejection cannot stand. In this case, the applied prior art references clearly do not arguably teach some limitations of the claims.

Claims 7, 10, 15-16, and 19 depend from their respective independent claims and incorporate their limitations. As discussed in relation to the sec. 102 rejection, there is no teaching in either these references that "each spiral conductor structure retains a same pair of circumferentially adjacent spiral conductor structures along a length of the electrical cable".

Applicant asks that the Examiner reconsider and withdraw this ground of rejection.

The present approach represents a departure from the conventional approach for signal-carrying conductors. In the usual approach, conductors are twisted so that they do not have the same relation to each other along the length of the cable. In the present approach, the conductors are expressly made to lie in the same side-by-side arrangement along the length, but the side-by-side arrangement is selected to minimize crosstalk interference.

Applicant submits that the Application is in condition for allowance, and requests such allowance.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

underlined material is to be inserted, [bracketed] material is to be deleted, and --material set off by dashes-- is to be added.

Claims:

1. (Amended) An electrical cable having a local longitudinal axis and comprising:

a central conductor structure comprising

an electrically conducting central conductor,

a layer of a central conductor insulation overlying the central conductor, and

an electrically conducting central conductor shield overlying the layer of central conductor insulation;

a plurality of spiral conductor structures overlying and spirally wrapped around the central conductor structure, wherein each spiral conductor structure retains a same pair of circumferentially adjacent spiral conductor structures along a length of the electrical cable, and wherein each of the spiral conductor structures [comprising] comprises

an electrically conducting spiral conductor, and

a spiral conductor insulation overlying the spiral conductor,

each spiral conductor structure having no electrically conducting shielding thereon;

an electrically conducting outer shield overlying the plurality of spiral conductors; and

an outer insulation overlying the electrically conducting outer shield.

cancel claim 8, without prejudice.

--21. (New) The electrical cable of claim 1, wherein at least one of the spiral conductor structures has a signal-carrying identity.--

--22. (New) The electrical cable of claim 1, wherein at least some of the spiral conductor structures have different signal-carrying identities.--

--23. (New) The electrical cable of claim 1, wherein at least some of the spiral conductor structures are arranged responsive to a crosstalk threat between the various spiral conductor structures.--

--24. (New) The electrical cable of claim 1, wherein at least some of the spiral conductor structures have an identity selected responsive to a designed carried signal selected from the group consisting of a video signal, an audio signal, a power signal, a telephone signal, a data signal, and a control signal.--

--25. (New) The electrical cable of claim 1, wherein the electrical cable is a signal-carrying component of an in-flight entertainment system.--

--26. (New) The method of claim 17, wherein the step of selecting includes the step of

arranging the spiral conductor structures responsive to a power carried by each spiral conductor structure and responsive to the power carried by the circumferentially adjacent pair of spiral conductor structures.--

--27. (New) The method of claim 17, wherein the step of selecting includes the step of

arranging the spiral conductor structures responsive to a crosstalk characteristic thereof.--

--28. (New) The method of claim 17, wherein at least some of the spiral

conductor structures have an identity selected responsive to a designed carried signal selected from the group consisting of a video signal, an audio signal, a power signal, a telephone signal, a data signal, and a control signal.--

--29. (New) An electrical cable having a local longitudinal axis and comprising:

a central conductor structure comprising

an electrically conducting central conductor,

a layer of a central conductor insulation overlying the central conductor, and

an electrically conducting central conductor shield overlying the layer of central conductor insulation;

a plurality of spiral conductor structures overlying and spirally wrapped around the central conductor structure, each of the spiral conductor structures comprising

an electrically conducting spiral conductor, and

a spiral conductor insulation overlying the spiral conductor,

each spiral conductor structure having no electrically conducting shielding thereon, wherein each of the spiral conductor structures has a designated identity, and wherein at least a first one of the spiral conductor structures has two circumferentially adjacent spiral conductor structures each having a different identity than the first one of the spiral conductor structures;

an electrically conducting outer shield overlying the plurality of spiral conductors; and

an outer insulation overlying the electrically conducting outer shield.--

--30. (New) An electrical cable having a local longitudinal axis and comprising:

a central conductor structure comprising

an electrically conducting central conductor,

a layer of a central conductor insulation overlying the central conductor,

and

an electrically conducting central conductor shield overlying the layer of central conductor insulation;

a plurality of spiral conductor structures overlying and spirally wrapped around the central conductor structure, wherein a circumferential positioning of the spiral conductor structures relative to each other is responsive to a signal carried by each spiral conductor structure, and wherein each of the spiral conductor structures comprises

an electrically conducting spiral conductor, and

a spiral conductor insulation overlying the spiral conductor,

each spiral conductor structure having no electrically conducting shielding thereon;

an electrically conducting outer shield overlying the plurality of spiral conductors; and

an outer insulation overlying the electrically conducting outer shield.--

--31. (New) The electrical cable of claim 30, wherein each spiral conductor structure retains a same pair of circumferentially adjacent spiral conductor structures along a length of the electrical cable.--

--32. (New) The electrical cable of claim 30, wherein each spiral conductor structure retains a same pair of circumferentially adjacent spiral conductor structures along a length of the electrical cable, and wherein the same pair of circumferentially adjacent spiral conductor structures is selected according to the signal carried by each of the three spiral conductor structures.--

--33. (New) The electrical cable of claim 30, wherein at least some of the spiral conductor structures have an identity selected responsive to a designed carried signal selected from the group consisting of a video signal, an audio signal, a power signal, a telephone signal, a data signal, and a control signal.--